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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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MORTALITY OF PATIENTS IN HOSPITALS FOR MENTAL DISEASES

Insanity in its various forms ranks among the very fatal and chronic diseases. Those who are so afflicted and who are cared for in the New York State hospitals suffer a deathrate approximately seven times as high as that prevailing in the general adult population. The excess mortality among the insane, of each sex, is very much greater at the earlier ages than in later life. The greatest difference of all is found among the adolescents. Among females, at these younger ages, the mortality is 20 times the normal, and among males it is 13½ times. At age 22, it runs nearly 10 times as high for insane males, and this ratio does not change much up to age 42. After that, it gradually becomes less, until in old age it runs from three to four times as high as that for males who are not insane.

The table on page 2 presents the deathrates for both the insane and normal populations and shows, in addition, the ratios between the rates at the various ages and with distinction of sex.

It is obvious that those types of insanity which are characteristic of early life involve the greatest losses. Unfortunately, the material available for study does not as yet permit the construction of mortality tables for each one of the major psychoses. It is very desirable that the authorities of State hospitals keep their records in a form to show the facts by psychoses, and in addition, establish a routine follow-up system by which records would be kept of the deaths of patients after they are discharged, whether under parole or entirely out of custody.

The most important of these newer and much needed materials require the taking of annual censuses of the resident patient populations, according to the type of mental disease, by sex and age; an annual record of the deaths from each important cause by psychoses, sex and age; an annual record of the discharges *not* by death, class-

ified by psychoses, sex and age; and a census of the parole group by psychoses, sex and age, with a tabulation of the deaths in the latter group along lines recommended for deaths among the resident hospital population. When this additional statistical material becomes

Deathrates per 1,000 of the Insane in New York State Hospitals, 1914-1923, Compared with Deathrates of the General Population, 1919-1920. New York State. By Sex and Age.

SEX, AGE	DEATHRATES PER 1,000		RATIO OF DEATHRATE OF INSANE TO THAT OF GENERAL POPULATION
	Insane	General Population	
MALES			
17	53.15	3.95	13.5
22	51.82	5.38	9.6
27	57.05	6.27	9.1
32	72.81	7.39	9.9
37	87.76	8.41	10.4
42	93.87	10.04	9.4
47	95.11	12.69	7.5
52	102.61	17.11	6.0
57	112.04	24.83	4.5
62	137.28	34.35	4.0
67	193.97	50.09	3.9
72	241.67	73.08	3.3
77	356.48	105.93	3.4
82	490.00	156.03	3.1
87	700.00	206.86	3.4
FEMALES			
17	68.79	3.43	20.1
22	80.72	5.28	15.3
27	61.79	6.60	9.4
32	64.81	6.74	9.6
37	59.08	6.73	8.8
42	57.62	8.11	7.1
47	58.86	10.66	5.5
52	67.53	14.40	4.8
57	71.44	21.42	3.3
62	92.07	29.64	3.1
67	129.68	46.70	2.8
72	190.18	69.40	2.7
77	253.61	98.63	2.6
82	355.00	140.30	2.5
87	500.00	199.05	2.5

available, it will be possible to construct life tables showing the expected after-life-time based on the mortality of the insane.

It is certain that the expectation of life of the insane is greatly curtailed, possibly by as much as one-half. This is obviously a matter

of great interest to medical science, but the ultimate figures will prove of even greater importance to those who must plan for the care of insane patients. Those who are charged with this responsibility must have for their guidance the number of hospital years for which provision must be made for various types of patients. Otherwise, even the most liberal provision may not be adequate.

SMALLPOX IN THE UNITED STATES AND CANADA, 1927

Three thousand, five hundred eleven more cases of smallpox were reported in comparable areas of the United States and Canada in 1927 than in 1926; but the number of deaths was reduced from 358 in 1926, to 146 in 1927, and the case-fatality rate declined from 1.2 deaths per 100 cases to .4 deaths. This is the lowest case-fatality rate on record for both countries. In seven Canadian provinces case reports of smallpox more than doubled in 1927 as compared with 1926; but, very fortunately, the disease proved to be so much less virulent that the case-fatality rate declined from .8 to .3. This, with a single exception, is the lowest lethality figure on record for smallpox in that country.

There were, it is true, a number of outbreaks, some of which necessitated the closing of schools—more especially to students who had not been vaccinated. Inasmuch as the smallpox which prevailed was unusually mild in type, the ultimate effect of some of these outbreaks may be good; for reports from a number of communities state that large numbers of persons were sufficiently alarmed to cause them to resort to vaccination. It is still unfortunately true that hundreds of thousands of Americans and Canadians will not avail themselves of the only known safeguard against smallpox until a grave situation arises and the urge of sheer fright is felt.

It would seem from the figures that real progress is being made in controlling this disease. But, with smallpox, we have learned that a year of favorable conditions may be followed by a serious increase—either in the number of cases, or in the virulence of the disease, or both. The combination of a small number of cases and a low virulence is apt to give a false sense of security. Many persons then seem to think that there is no further cause for fear—that they are through with smallpox, and that there is no need to have their children vaccinated or themselves revaccinated. The result is an unprotected population; and a case of smallpox coming into the community is like a match thrown into a tinder pile. There are numerous examples of how a smallpox situation may change in a

Cases, Deaths and Deaths per 100 Cases from Smallpox. Certain American States and Canadian Provinces, 1925, 1926, 1927

AREA	1927			1926			1925		
	Cases	Deaths	Deaths per 100 Cases	Cases	Deaths	Deaths per 100 Cases	Cases	Deaths	Deaths per 100 Cases
UNITED STATES AND CANADA	34,592	146	.4	31,081	358	1.2	34,835	694	2.0
U. S. (40 States and Dist. of Columbia)	32,102	138	.4	29,868	348	1.2	33,668	686	2.0
Canada (7 Provinces)	2,490	8	.3	1,213	10	.8	1,167	8	.7

Smallpox Cases and Deaths in Selected States and Provinces, 1927

AREA	Cases	Deaths	Deaths per 100 Cases
UNITED STATES: (40 States and District of Columbia)	32,102	138	.4
SELECTED STATES:			
Alabama	1,242	5	.4
Arizona	10	0	.0
Arkansas	168	1	.6
California	984	5	.5
Connecticut	0	0	.0
Delaware	1	0	.0
District of Columbia	63	0	.0
Florida	1,356	12	.9
Georgia	1,853	13	.7
Idaho	759	0	.0
Indiana	4,809	15	.3
Iowa	1,279	2	.2
Kansas	1,392	1	.1
Kentucky	1,762	8	.5
Louisiana	284	5	1.8
Maine	1	0	.0
Maryland	9	0	.0
Massachusetts	2	0	.0
Michigan	1,469	0	.0
Minnesota	126	0	.0
Montana	575	0	.0
Nebraska	691	1	.1
Nevada	56	0	.0
New Hampshire	0	0	.0
New Jersey	21	0	.0
New Mexico	90	1	1.1
UNITED STATES: —*Continued*			
SELECTED STATES: —*Continued*			
New York	376	0	.0
North Dakota	208	0	.0
Ohio	1,558	10	.6
Oklahoma	1,644	6	.4
Oregon	1,167	5	.4
Pennsylvania	19	0	.0
Rhode Island	5	0	.0
South Carolina	559	5	.9
South Dakota	403	2	.5
Texas	2,341	23	1.0
Vermont	0	0	.0
Virginia	977	4	.4
Washington	1,806	8	.4
West Virginia	1,099	2	.2
Wisconsin	938	4	.4
CANADA:	2,490	8	.3
Provinces:			
Alberta	481	3	.6
British Columbia	258	1	.4
Manitoba	113	0	.0
New Brunswick	1	0	.0
Nova Scotia	1	0	.0
Ontario	1,523	2	.1
Quebec	113	2	1.8

single year. In Denver, Colo., for example, there were no deaths from smallpox in either 1919 or 1920; but in 1921 the disease appeared in virulent form, with 46 deaths in 924 cases. In Kansas City, Kan., where no deaths resulted from a small number of cases in 1919 and 1920, there were 15 deaths in 267 cases, in 1921.

Last year there were only 146 deaths in forty states and seven

Smallpox Cases, Deaths and Case-Fatality Rates for 651 Cities in the United States and Canada 1925-1927

AREA	1927			1926			1925		
	Cases	Deaths	Deaths per 100 Cases	Cases	Deaths	Deaths per 100 Cases	Cases	Deaths	Deaths per 100 Cases
United States and Canada (651 Cities)...	10,524	27	0.3	10,199	235	2.3	15,233	436	2.9
United States (574 Cities).....	9,429	25	0.3	9,818	232	2.4	14,733	435	3.0
Canada (77 Cities).....	1,095	2	0.2	381	3	0.8	500	1	0.2

Smallpox Cases and Deaths in Certain Cities, 1927

CITY	CASES	DEATHS	DEATHS PER 100 CASES
Toronto, Ontario	283	1	.35
Calgary, Alberta	107	1	.93
Bessemer, Ala.	8	1	12.50
Orlando, Florida	79	1	1.27
Chicago, Illinois	90	1	1.11
Elkhart, Indiana	61	1	1.64
Indianapolis, Indiana	803	4	.50
Topeka, Kansas	153	1	.65
Baton Rouge, Louisiana	12	1	8.33
Wyandotte, Michigan	3	3	100.00
Kansas City, Missouri	225	1	.44
St. Joseph, Missouri	618	2	.32
Asheville, North Carolina	212	3	1.42
Niles, Ohio	2	1	50.00
Charleston, South Carolina	16	1	6.25
El Paso, Texas	3	1	33.33
Houston, Texas	123	1	.81
Ogden, Utah	310	1	.32
Green Bay, Wisconsin	116	1	.86

Canadian provinces. But if the case-fatality rate which prevailed in Louisiana, or Quebec, had obtained throughout both countries, there would have been more than 600 deaths; and if rates like those which have not infrequently prevailed in states like Arizona, California, Minnesota, New Jersey, Pennsylvania, Wisconsin, and other states, and in scores of cities had been in evidence last year, the mortality would have run into the thousands, and smallpox would have been numbered among the major causes of death. It is only by the merest good fortune that smallpox, in recent years, has not been the most virulent where it was the most prevalent. But the danger of this happening is an ever present one.

In forty states and the District of Columbia, and in seven Canadian provinces for which comparable data are given in the table on page 4, high case-fatality rates based on a significant number of deaths were recorded only in Louisiana, Florida, Georgia, Texas and the Province of Quebec. In three states, Connecticut, New Hampshire, and Vermont, no cases were reported during 1927. New England, in fact, was singularly free from smallpox last year, with only one case in Maine, two in Massachusetts and five in Rhode Island. The states with outstandingly large numbers of cases were Indiana, Texas, Georgia, Washington, Oklahoma, Kentucky, Ohio, Kansas, Florida, Iowa, Oregon, Alabama and West Virginia; and in Canada, the Province of Ontario.

In 651 cities in the United States and Canada the case-fatality rate in 1927 dropped to .3 per 1,000, as compared with 2.3 in 1926 and 2.9 in 1925. The table on page 5 shows the facts for certain cities which are selected either on account of above-average prevalence of smallpox or unusually high case-fatality rates.

RELATIVE IMMUNITY AND SUSCEPTIBILITY OF NEGROES TO DISEASE

The prevalence of and deathrate from many diseases vary, undoubtedly, as between the white and negro elements, but how much of these differences are due to racial immunity or susceptibility *per se*, and how much to racial customs, economic status and environment is difficult, perhaps impossible, to determine. It is fairly certain that there is no *complete* racial immunity to any disease; it may be true, however, that there does exist *partial* racial immunity to some diseases. The same holds true with reference to susceptibility to certain morbid conditions.

We may consider first the principal epidemic diseases of childhood.

The colored child is considerably less likely to be attacked by measles than is the Caucasian. Statistics of four American cities show an average annual "attack rate" for whites which is more than double the figure for the colored. It is solely on account of this higher attack rate among white people that they have, usually, the higher death-rate from this disease; for once measles is contracted the colored child is much more apt to die from it than is the white. One reason for this higher case-fatality rate among negroes is their greater liability to the complication of lobar pneumonia with measles. Diphtheria and scarlet fever are by no means as common among colored as among white people. With diphtheria, as with measles, however, negroes have the higher case-fatality rate. As for whooping cough, the evidence is that the negro is not only more susceptible than the white, but less resistant to the disease.

The opinion is commonly held that colored people are much less apt than are the whites to be attacked by the organism of acute anterior poliomyelitis. Whether or not this is a fact, it seems to be true that the negroes have a lower deathrate from this disease.

The fact that the deathrate from tuberculosis runs about three times as high among negroes as among whites has caused much discussion of the former's susceptibility to this disease. There is grave question as to whether, inherently, the negro is more apt than the white to contract tuberculosis. In his native habitat, Africa, the disease was only slightly prevalent. One prominent authority takes the position that one race, when first meeting tuberculosis, is as vulnerable as another; and that when the African negro was brought to America he moved into "tuberculosis surroundings," that he soon became infected and that the disease runs a more acute and fatal course with him than with the white man. It is probable that the higher deathrate among negroes from tuberculosis is due, more than anything else, to ignorance, poverty and lack of proper medical treatment.

There are a number of diseases, however, where the evidence points strongly to the existence of either relative immunity or relative susceptibility of the negro. For example, locomotor ataxia, which is now generally recognized as of syphilitic origin, does not develop so frequently among them despite the greater incidence of syphilis among the colored. It is certain that the skin of the negro is more resistant to certain micro-organisms than that of the Caucasian. Hence, he is relatively immune to acute abscesses and infections of the connective tissues of the skin. He does not have boils so frequently; veno-

mous bites and stings have less effect upon him and he has much less dermatitis arising from traumatism. Cancer of the skin is rare among negroes, suggesting that perhaps the heavier pigmentation and the more pronounced secretory activities of the sweat-glands offer greater protection against malignant dermal growths than obtains for the Caucasian.

Comparison of the data for white and colored troops has brought out the fact that the colored have fewer cases of nervous instability than do the whites. They are less apt to have neurasthenia and "constitutional psychopathic state." Colored men have much fewer functional cardiac disturbances of nervous origin; they have fewer eye and ear defects.

A few years ago the opinion held that diabetes was relatively infrequent among negroes. Later developments, however, indicate that there is little or no racial immunity among them to this disease. In recent years, the deathrate for diabetes among insured negroes in the Metropolitan Life Insurance Company has actually exceeded that of the whites. Even if the rural negro is less apt than the white to contract diabetes it now appears that in urban surroundings the negro is capable of much sickness and high mortality from this disease. The most reliable data suggest strongly that the negro is less liable to contract erysipelas, anemia and leukemia. There are fewer cases among them of gall-bladder infection and of urinary calculus.

HEALTH RECORD FOR APRIL, 1928

Health conditions among the industrial populations of the United States and Canada were better during April than is usual for that month. Nevertheless, they were not as favorable as those which obtained during the same month in 1927, when the mortality reached the lowest point ever recorded for April among the Industrial policyholders of the Metropolitan Life Insurance Company. There was a slight seasonal decline from the March, 1928, mortality rate.

The higher mortality as compared with April a year ago is accounted for, in large part, by large increases in deaths from influenza, pneumonia and other respiratory conditions. These diseases were jointly responsible for 20 per cent. of all the deaths in April. As is invariably the case when there is increased prevalence of influenza-pneumonia, relatively higher deathrates were experienced in April for the principal chronic "degenerative" diseases. The heart disease deathrate was 11 per cent. higher, and that for Bright's

disease, 13 per cent. higher than for April a year ago; and there was a somewhat smaller rise for cerebral hemorrhage.

Two of the principal epidemic diseases of childhood, measles and scarlet fever, also showed higher rates than were in evidence a year ago. This has little significance with respect to scarlet fever, as the rate has been unusually low both this year and last. Deaths from measles, however, have been much more frequent than during the early months of 1927. The year-to-date deathrate, up to May 12th, was 7.3 per 100,000 as compared with 4.7 for the corresponding period of 1927. There were small increases in April in the rates for diabetes, diarrheal complaints and puerperal diseases.

Tuberculosis continues to be the outstandingly favorable item in the health record of 1928. No doubt whatever now exists that 1928 will register a new minimum mortality rate for this disease. The winter and early spring seasons, when deaths from tuberculosis are always most numerous, are now behind us; and up to the week ending May 12th, the tuberculosis deathrate among Metropolitan Industrial policyholders was only 93.7 per 100,000 as compared with 102.5 for the corresponding period of last year. This is a gain of 8.6 per cent. The rate for the whole year 1927 was 93.5 per 100,000. Obviously, then, the tuberculosis deathrate *for the worst part* of 1928 is as low as for all of 1927; and after the influence of the summer and fall months is felt, the 1928 tuberculosis mortality rate will be sure to drop to a new low point. All indications are that the gain will be large.

The April record for violent deaths shows improvement in every respect, with fewer suicides, homicides, fatal accidents and automobile fatalities than were registered in April, 1927. The 1928 deathrate for automobile accidents, up to May 12th was, nevertheless, considerably in excess of that for the corresponding period of last year.

The general deathrate for the large cities of the United States, in April, was 14.9 per 1,000. This is much higher than in April, 1927 (13.8), and slightly above the rate for March, 1928. Reports from all sections of the country show that fewer cases of the "notifiable" diseases were reported in April than in March. Typhoid fever is the only exception. There were fewer cases of diphtheria, influenza, measles, poliomyelitis, scarlet fever and smallpox. As compared with April a year ago, there was greater prevalence of influenza, measles, poliomyelitis and smallpox, with less scarlet fever, typhoid fever and diphtheria.

Although influenza cases were somewhat fewer in April than in March, large increases were reported in Wisconsin and Oklahoma. The public schools in Brodhead, a small Wisconsin town, were closed for ten days because of an epidemic of influenza and mumps. There was a quite severe influenza outbreak at Waukesha. Other outbreaks were reported from Mentone, Ind., and from an Indian reservation in Tooele County, Utah.

Although measles was slightly less prevalent during April, increased numbers of cases were reported from Nebraska and Florida. Reports from forty-five states indicate that poliomyelitis was less prevalent in April, with 62 cases as compared with 98 in March.

Reports from 43 states show 3,196 smallpox cases during the first three weeks of April as compared with 3,589 during the same weeks in March. Smallpox was reported to be prevalent in several towns in Lake County, Ind.

According to a statement issued by the Commissioner of Health of New York City there were 284 cases of cerebrospinal meningitis during the first four months of 1928, with 143 deaths. In Dayton, a small town in the State of Washington, schools and motion picture houses were closed when three deaths were reported from this disease.

Three persons were reported dead and another seriously ill from Rocky Mountain spotted fever, in Idaho.

There were a number of important health developments during the month. Three counties in Tennessee provided for full-time county health units. A three-year campaign for the prevention of acute poliomyelitis was launched with the announcement that JEREMIAH MILBANK of New York had given $250,000 for research in connection with this disease. The University of Chicago, Columbia, Harvard and New York Universities, the University of Brussels and the Lister Institute, of London, are cooperating.. The Illinois Health Promotion Week program was divided into two periods. The 52 counties in the southern part of the State observed this occasion in the first week of April, and the 50 remaining counties in the fourth week.

The following table shows the mortality among the Industrial policyholders for April, 1928; March, 1928; April, 1927, and the year 1927.

METROPOLITAN LIFE INSURANCE COMPANY

Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department (Annual Basis)

MONTHS OF APRIL, 1928; MARCH, 1928, AND OF APRIL, 1927

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*			
	Apr. 1928	Mar. 1928	Apr. 1927	Year 1927†
TOTAL—ALL CAUSES	996.9	1,027.0	954.1	885.4
Typhoid fever	1.4	1.3	6.7	4.6
Measles	10.2	7.7	7.5	4.1
Scarlet fever	4.4	3.4	3.8	3.1
Whooping Cough	6.1	6.2	7.6	6.4
Diphtheria	9.3	11.4	9.7	10.5
Influenza	35.4	34.8	27.1	17.7
Tuberculosis (All forms)	94.8	100.1	107.2	93.3
Tuberculosis of resp'y system	83.8	88.6	95.0	81.7
Cancer	75.0	74.8	77.0	74.0
Diabetes mellitus	18.0	20.4	17.5	16.7
Cerebral hemorrhage	59.5	59.6	56.6	54.9
Organic diseases of heart	151.8	160.7	137.3	132.2
Pneumonia (All forms)	140.6	137.3	110.7	77.6
Other respiratory diseases	19.3	21.9	16.6	15.4
Diarrhea and enteritis	15.8	14.7	15.2	24.5
Bright's disease (Chronic nephritis)	74.5	82.3	66.1	69.3
Puerperal state	15.2	13.8	14.7	15.4
Suicides	8.2	9.3	8.9	8.3
Homicides	5.6	6.2	6.0	7.2
Other external causes (excluding suicides and homicides)	53.4	48.3	54.8	63.7
Traumatism by automobiles	15.3	11.2	15.7	18.3
All other causes	198.4	212.5	203.2	186.7

*All figures include infants insured under one year of age.

†Based on provisional estimate of lives exposed to risk in 1927.

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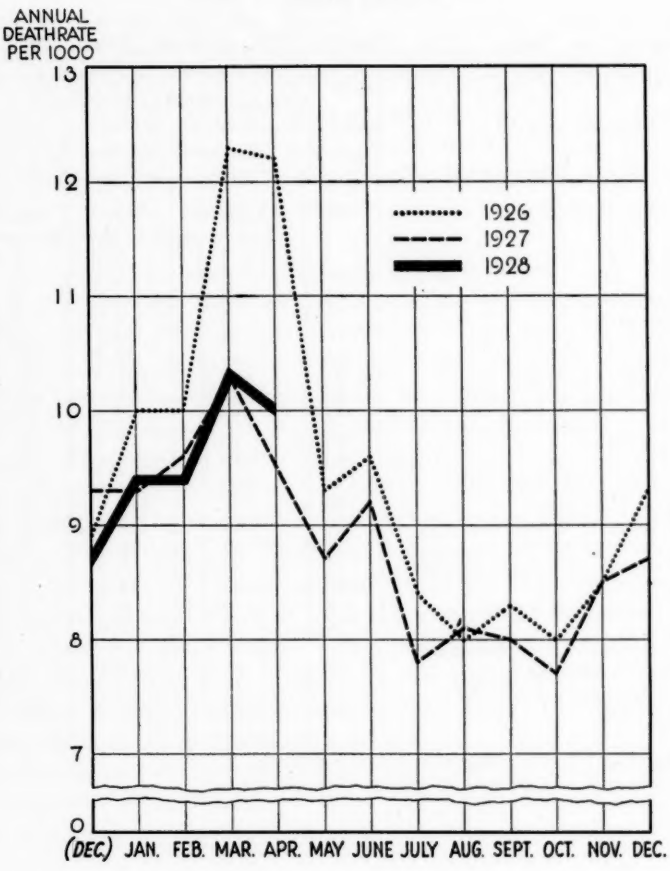
Deathrates from All Causes

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT



1926	10.0	10.0	12.3	12.2	9.3	9.6	8.4	8.0	8.3	8.0	8.5	9.3
1927	9.3	9.6	10.3	9.5	8.7	9.2	7.8	8.1	8.0	7.7	8.5	8.7
1928	9.4	9.4	10.3	10.0								

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